AMENDMENTS TO THE SPECIFICATION

Please replace paragraph [0079] of the specification as published, found on page 15, lines 15-32 of the specification as filed, with the following amended paragraph:

[0079] The present invention provides methods for maintaining the functional stability of an enzyme in a solution, preferably a polymerase in a PCR or real time-PCR buffer, although other enzymes like reverse transcriptase polymerase III, etc. are within the scope of the present invention. Initially, a polyol, AFP or AFP with carrier protein is combined with a desired amplification enzyme. The combination can occur in a standard amplification buffer or buffers consistent with more specific embodiments of the present invention. The combined enzyme-polyol, enzyme-AFP, or enzyme-AFP-carrier protein is then utilized in the reaction mixture for an amplification reaction. Remaining material, when frozen, is protected from some or all of the freeze/thaw effects. The enzyme solution thus obtained maintains the requisite enzymatic activity and can be used over the course of numerous freeze/thaw events, preferably as many as five or ten freeze/thaw events, more preferably as many as fifteen freeze/thaw events. In a preferred embodiment, the amplification reaction is a real time-PCR reaction. In another embodiment, the method incorporates an enzyme mixed with at least two of: a polyol, an AFP, and a carrier protein, and most preferably all three components are included. In an additional embodiment, an unconventional nucleotide is included in the amplification reaction mix to enhance the efficiency of the reactions by lowering the formation of primer-dimers, as described in co-pending Patent Cooperation Treaty Application No. [[_____]] PCT/US2005/003567, filed Feb. 4, 2005, entitled dUTP BASED COMPOSITIONS FOR REDUCING PRIMER-DIMER FORMATION DURING NUCLEIC ACID AMPLIFICATION, incorporated by reference herein.

Please replace the paragraph [0084] of the specification as published, found on p. 17, lines 6-17 of the application as filed, with the following amended paragraph

[0084]It is also envisioned that embodiments using modified dNTP mixtures to limit primer-dimer formation in accordance with embodiments previously described can be included with embodiments of the high performance PCR buffers of the instant invention. See co-pending Patent Cooperation Treaty Application No. [[_____]] PCT/US2005/003567, filed Feb. 4, 2005,

and entitled dUTP BASED COMPOSITIONS FOR REDUCING PRIMER-DIMER FORMATION DURING NUCLEIC ACID AMPLIFICATION, incorporated herein by reference. As such, embodiments using the zwitterionic buffer formulations can have one or more of AFP, carrier protein, sorbitol, mannitol, DMSO, SSBP, and a dNTP mix having a percentage of the dTTP or other dNTP replaced with an unconventional nucleotide like dUTP. Note also that the embodiments of the present invention can include a combination of AFP 1 with DMSO (or other like compound) and a polyol, for example, sorbital (See for example, U.S. Pat. No. 6,783,940, which is incorporated herein by reference). Typically, the composition has a pH of between about 7.9 and 8.2 for optimal effects. Other pH can be used but with limited results.